Encapsulation Unit ï VARJ1

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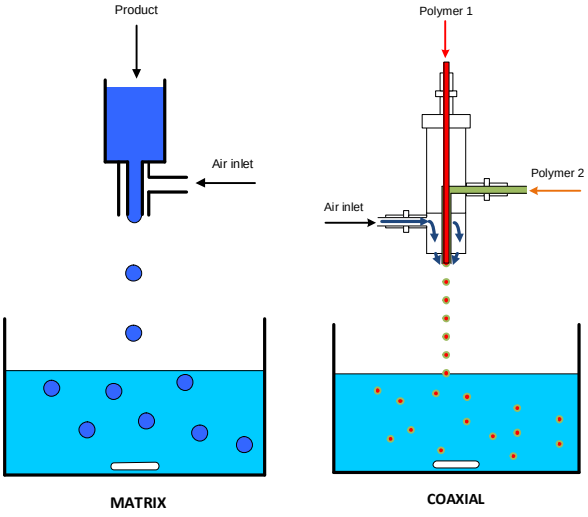
In most applications involving immobilisation of living cells or other biological materials the bead size is needed to be small (<1 mm) and carefully controlled. The reason for this is mostly because of diffusion limitation of nutrients within the hydrogel beads. An easy way for production of small alginate beads in a controllable manner is the use of a coaxial bead generator.

The basic principle of the instrument is the use of a coaxial air stream to pull droplets from a needle tip into the gelling bath. The Nisco **VARJ1** is designed for production of smaller quantities of spherical alginate beads ranging in size down to around 500ε m.

The bead generator with coaxial airflow is basically made of Polyetheretherketone (PEEK) and can withstand most chemicals and high temperatures, which makes the unit very suitable for any disinfecting/cleaning method, typically autoclave cleaning.



Principle of coaxial airflow bead generator

The Unit is equipped with two connections:
ï one for the hose, which feeds the alginate (or other) solution,
ï and the second connection which is meant for an air-hose with 4 mm OD.

In the coaxial option there is an additional connection for the feed of the shell polymer solution.

The alginate (or other) solution may be fed into the unit with a syringe, using a syringe pump.

The magnetic stirrer is placed underneath the gelling bath to keep the beads separated during gelling.